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EXAMINER

HOFFMANN, JOHN M

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GIACOMO STEFANO ROBA,
MASSIMO NUTINI, and
FRANCO VERONELLI

Appeal 2009-014244¹
Application 09/986,622
Technology Center 1700

Decided: April 29, 2010

Before MICHAEL P. COLAIANNI, LINDA M. GAUDETTE, and
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 the final rejection of claims 51-69. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

¹ Oral arguments were heard in this appeal on April 14, 2010.

We REVERSE.

Appellants describe a furnace for drawing optical fibers (Spec. 1:1-5). The furnace includes a conditioning gas distributor 37 having a distribution chamber 109 and distribution ring 107 (Spec. 29:7-16; Fig. 4). The gas is fed through an upward-angular path 152 and a downward annular channel 110 (Spec. 31:1-19; Fig. 4).

Claims 51 and 61 are illustrative:

51. A drawing furnace for drawing an optical preform, said furnace comprising:

- a furnace body having an upper end and a lower end and comprising at least a susceptor, an induction coil and an insulating material disposed between said susceptor and said induction coil;

- a muffle connected to the upper end of said furnace body, said muffle comprising a mechanical seal for avoiding inlet of ambient air into the furnace, said muffle being adapted to surround the optical preform before the optical preform is moved into said furnace body;

- a bottom portion connected to the lower end of said furnace and wherein said bottom portion comprising at least a lower portion with a decreasing cross-sectional area from the top to the bottom of the bottom portion in a plane perpendicular to the longitudinal axis; and

- a distributor body having a substantially annular distribution chamber, a distribution ring, and an outlet in fluid communication with an interior of the muffle, the distributor body configured to receive conditioning gas substantially tangentially with respect to the substantially annular distribution chamber, the distribution ring being adapted to uniformly introduce and forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards said furnace body and to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

61. A drawing furnace for drawing an optical preform, said furnace comprising:

a furnace body having an upper end and a lower end and comprising at least a susceptor, an induction coil and an insulating material disposed between said susceptor and said induction coil;

a muffle connected to the upper end of said furnace body, said muffle comprising a mechanical seal for avoiding inlet of ambient air into the furnace, said muffle being adapted to surround the optical preform before the optical preform is moved into said furnace body;

a bottom portion connected to the lower end of said furnace and wherein said bottom portion comprising at least a lower portion with a decreasing cross-sectional area from the top to the bottom of the bottom portion in a plane perpendicular to the longitudinal axis; and

a distributor body having a substantially annular distribution chamber, a distribution ring, and an outlet in fluid communication with an interior of the muffle, the distributor body configured to receive conditioning gas substantially tangentially with respect to the substantially annular distribution chamber, the distributor body including (i) at least one downwardly angled channel operable to forcedly direct a first portion of the conditioning gas into the muffle in a downward direction towards said furnace body and (ii) at least one upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber to create a buffer of conditioning gas having a pressure higher than a pressure outside the drawing furnace.

The Examiner relies on the following prior art references as evidence of unpatentability:

Kaiser	4,030,901	Jun. 21, 1977
Bair	4,547,644	Oct. 15, 1985
Harding	4,988,374	Jan. 29, 1991
Strackenbrock	5,160,359	Nov. 3, 1992
Harvey	5,284,499	Feb. 8, 1994

Tsuchiya ² (as translated)	JP 0891862	Apr. 9, 1996
Dickinson	US 2002/0029591 A1	Mar. 14, 2002

The rejections maintained by the Examiner are as follows:

1. Claims 61-69 are rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point and distinctly claim Appellants' invention.
2. Claims 51-69 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dickinson in view of Kazuya, Strackenbock, Harding, and Bair, and optionally in view of Kaiser.

REJECTION (1)

ISSUE

Did the Examiner reversibly err in determining that the phrase “angled path” in claim 61 fails to particularly point out and distinctly claim the subject matter which Appellants regard as the invention as required by 35 U.S.C. § 112, second paragraph? We decide this issue in the affirmative.

PRINCIPLES OF LAW

The test for definiteness under 35 U.S.C. 112, second paragraph, is whether “those skilled in the art would understand what is claimed when the claim is read in light of the specification.” *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576 (Fed. Cir. 1986).

² The Examiner and Appellants refer to the Tsuchiya as Kazuya throughout the record. We adopt the same designation for consistency.

FACTUAL FINDINGS (FF)

1. With regard to the “angled path” feature of claim 61, the

Specification discloses:

Optionally, distribution ring 107 may also be conical shaped on its upper surface so that a small amount of conditioning gas can flow through the upward-angled annular path 152, defined by upper surface 111 of distribution ring 107 and distributor casing top 103, into chamber 122. This optional flow of conditioning gas 152, which should be very low in order to avoid any gas turbulence inside the top chimney, creates in the upper portion of the top chimney a buffer of gas having a pressure higher than the one of the outer atmosphere thus further preventing . . . ambient air from possibly entering chamber 122 and thus muffle 33.

Spec. 31: 7-19.

2. Appellants’ Figure 4 shows space formed between the upper surface 111 of the distribution ring 107 and the distributor casing top 103 through which gas flows.

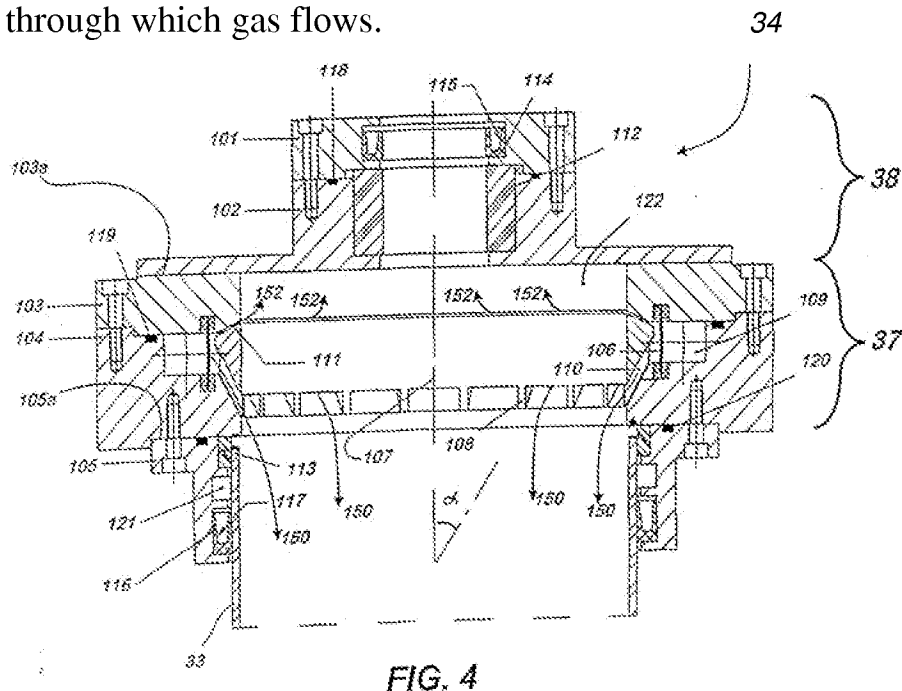


FIG. 4

Figure 4 depicts annular distributor 34 of Appellants’ invention.

ANALYSIS

The Examiner finds that it is unclear whether “angled path” is delimited by structure (Ans. 5). The Examiner finds that the Specification describes the upward-angled annular path 152 as being both a “path” and a “flow”, which are generally different things (Ans. 5). The Examiner contends that one of ordinary skill in the art would be confused because the paths 152 seem to be a flow of gas, which is not structure, and upper surface 111 of distribution ring 107 and casing top 103 only partially define the upwardly angled path (Ans. 6).

Appellants argue that the Specification describes the “upwardly angled path” is defined by structure (e.g., reference numerals 107, 113, and 111 in Figure 4) (App. Br. 10-11). Appellants argue that the Specification describes that “gas can flow through the upward-angled annular path 152” which indicates that the path is defined by structure and that “upward-angled path” does not refer simply to a flow of gas (App. Br. 11). We agree.

The Specification plainly discloses that an upward-angled path 152 is formed between the upper surface 111 of distribution ring 107 and a surface of the casing top 103. Though the Specification may improperly use reference numeral 152 to depict the gas flow exiting the upward-angled paths and the upward-angled paths as depicted in Figure 4, one of ordinary skill in the art would understand from the Specification that the upward-angled path as recited in claim 61 refers to structure and not gas flow.

For these reasons, we reverse the Examiner’s § 112, second paragraph, rejection of claims 61-69.

Rejection (2): § 103(a)

ISSUE

Did the Examiner reversibly err in finding that Harding teaches a distributor body having a substantially annular distribution chamber with outlets (e.g., 13 and 8a in Figure 1) that are “adapted . . . to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber” (claim 51) or an “upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber” (claim 61)? We decide this issue in the affirmative.

FINDINGS OF FACT

3. Harding teaches supplying gas through hose 15 to a manifold 14 which then flows out gas entry ports 13 and into the space 5 of the drawing furnace (col. 2, ll. 62-68).
4. Harding describes feature 8a as an iris that is open or closed to insert or remove a preform from the furnace (col. 3, ll. 22-25; 35-37).
Harding does not disclose that gas flows through 8a.
5. The Specification describes the embodiment where a second portion of conditioning gas is provided to the upper portion of the top chimney as having the distributor with a second flow channel formed by the upper surface 111 of distribution ring 107 and the distribution casing top 103 to provide the second portion of the conditioning gas to the upper portion of the top chimney (Spec. 31:7-19).

ANALYSIS

Appellants do not contest that it would have been obvious to combine Dickinson, Kazuya, Bair, Harding, and Kaiser (App. Br. *generally*). Rather, Appellants argue that Harding fails to teach or suggest a distributor having an upwardly angled path to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber (claim 61) or a distributor body having a distribution ring adapted to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber (claim 51) (App. Br. 15-22). Appellants contend that Harding only teaches downwardly angled channels 13 for downwardly introducing gas into the furnace (App. Br. 15, 20). We agree.

The Examiner's findings that Harding's distributor is inherently capable of performing the functions of claim 51 or has an upwardly angled path (claim 61) are based on the erroneous determination that the claimed distributor lacks structure such that the disputed feature may be met by simply an unbounded gas flow with suitable operating conditions to direct the gas flow upward (e.g., using a pressurized gas source or adding a vacuum) (Ans. 9, 13, 17-19).

To the contrary, claim 51 requires that the distributor body have a distribution ring "adapted . . . to direct as second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber," which requires a distributor ring structure that is capable of performing the directing function for the second gas. The Specification discloses that the distributor is structured to direct a second portion of the conditioning gas toward the upper portion of the chamber (FF 5). Accordingly, construing "adapted . . . to direct" in claim 51 in light of the Specification requires that

the distributor is structured so as to be capable of performing the function of directing a second portion of the conditioning gas toward the upper portion of the distribution chamber.

The Examiner's construction of "adapted to direct" on page 18 of the Answer as only requiring an upwardly directed gas flow to satisfy the "to direct" functional language is unreasonable in light of the Specification because it fails to address the "distributor ring adapted" language of the claim that precedes the functional language, which requires that the distributor ring be structured to be capable of performing the recited function. Indeed, the Examiner's construction is based on the erroneous determination advanced in the § 112, second paragraph, rejection that the page 31, lines 7-19 Specification disclosure does not require complete structure for the path, and may be met by simply a gas flow (Ans. 18).

For similar reasons, as noted above in our discussion of the § 112, second paragraph rejection, claim 61 structurally requires the distributor body include "at least one upwardly angled path to direct a second portion of conditioning gas."

The Examiner has not established that Harding's distributor is structured so as to be capable of performing the recited functions of claim 51, or has the same upwardly angled structure of claim 61. While the Examiner refers to feature 8a in Harding as showing that gas is directed to an upper portion of the distribution chamber (Ans. 8 and 13), Harding discloses that 8a is an iris that opens or closes for insertion or removal of the preform from the furnace. Harding does not disclose that gas flows through 8a and the Examiner has not pointed us to any teaching to substantiate that

finding. Rather, we agree with Appellants that Harding only teaches that the gas flows downwardly through outlets 13.

Moreover, the Examiner's conjecturing that a pressurized gas source or vacuum could be added to direct the gas flow upwardly (Ans. 17-19) is unavailing because such fails to address the claim requirement that the distributor be structured to perform the upward directing function. The additional structure (i.e., pressurized gas source and vacuum) required by the Examiner's hypothetical device appears to indicate that the requisite structures of claims 51 and 61 are missing from Harding.

The Examiner has not established that Harding teaches a distributor structure that is capable of performing the directing function as recited in claim 51 (i.e., a distributor body adapted to direct a second portion of the conditioning gas to an upper portion of the substantially annular distribution chamber) or a distributor structure as required by claim 61 (i.e., an upwardly angled path). Accordingly, the Examiner has not met the burden of establishing an initial prima facie case of unpatentability.

We reverse the Examiner's rejection of claims 51-69 under § 103(a) as being unpatentable over Dickinson in view of Kazuya, Strackenbrock, Harding, Bair, and optionally in view of Kaiser.

DECISION

The Examiner's decision is reversed.

ORDER

REVERSED

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Application 09/986,622

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